

Settings Log

Device setting activity considerations
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Due to the open access available in the local station/IRM system, it may be useful to consider what kind of log could be built of recent setting actions. If something strange happened to the accelerator, one may get a clue by checking a settings log.

One possibility to aid implementation would be to define a data stream to hold this information. The advantage to this approach is the support already built in for data stream access. For some time, a data stream has been defined to hold recent network frame activity; something similar might work for settings. Done this way, a host would have to empty this data stream regularly. Since the frequency of activity might vary widely, it may be hard for a host to predict when to get an update. If we implement this by using event-based replies, we could define an event that meant the settings data stream queue was getting full and could trigger a reply. In that way, the host would receive replies only when one needed to be sent. This scheme assumes a host with an active periodic request. It would also mean that multiple hosts could monitor this queue without interference—a data stream feature.

One could do the same thing without a data request. The log structure could be a data stream or some other queue. The station could implement it via a local application that targeted a settings log server via an Acnet task name, or to a specific UDP port#. In a similar way that the AERS local application works to shepherd alarm messages to AEOLUS, we could package up log records for a server node.

What information would be recorded? The key concern of Fermilab operators might be accelerator hardware setting activity. Many channels may not pertain to accelerator hardware whose log records would not serve a useful purpose. But which are useful? Certainly some analog channels would be interesting. A table that specified ranges of analog channel#s could be used to specify channels of interest. What about digital settings? It may be useful to include channel-based digital control, or even bit-based or byte-based digital control. Information that might be recorded:

<i>Field</i>	<i>#bytes</i>
Date / time of setting	8
Host making setting	2
Device being set—channel#, bit#, etc	2
Type of setting action (listype#)	1
Data used	2

It seems that 16 bytes would be enough for this record. A host could get a channel's name and descriptor text from the channel#.